SEQUENCE LISTING

<110> Zambrowicz, Brian
       Friedrich, Glenn A.
       Lilleberg, Stan
       Sands, Arthur T.

<120> Vectors for Gene Mutagenesis and Gene Discovery

<130> 07705.0001-00000

<140> US 09/443,282
<141> 1999-11-19

<150> US 09/276,533
<151> 1999-03-25

<150> US 60/109,302
<151> 1998-11-20

<150> US 60/081,727
<151> 1998-04-14

<150> US 60/079,729
<151> 1998-03-27

<160> 33

<170> PatentIn version 3.2

<210> 1
<211> 43
<212> DNA
<213> mus musculus

<400> 1
gcaaccagta acctctgccc tttctcctcc atgacaacca ggt   43

<210> 2
<211> 41
<212> DNA
<213> adenovirus

<400> 2
gatgatgtca tacttatcct gtcccttttt tttccacagc t   41

<210> 3
<211> 35
<212> DNA
<213> mus musculus

<400> 3
ggcggtcagg ctgccctctg ttcccattgc aggaa   35

<210> 4
<211> 42
<212> DNA
<213> mus musculus

<400> 4
tgtcagtctg tcatccttgc cccttcagcc gcccggatgg cg   42

```
<210>  5
<211>  39
<212>  DNA
<213>  mus musculus

<400>  5
tgctgacacc ccactgttcc ctgcaggacc gccttcaac                      39


<210>  6
<211>  34
<212>  DNA
<213>  mus musculus

<400>  6
taattgtgta attattgttt ttcctccttt agat                          34


<210>  7
<211>  40
<212>  DNA
<213>  mus musculus

<400>  7
cagaatcttc tttttaattc ctgattttat ttctatagga                    40


<210>  8
<211>  37
<212>  DNA
<213>  mus musculus

<400>  8
tactaacatt gccttttcct ccttccctcc cacaggt                       37


<210>  9
<211>  37
<212>  DNA
<213>  mus musculus

<400>  9
tgctccactt tgaaacagct gtctttcttt tgcagat                       37


<210>  10
<211>  36
<212>  DNA
<213>  mus musculus

<400>  10
ctctctgcct attggtctat tttcccaccc ttaggc                        36


<210>  11
<211>  35
<212>  DNA
<213>  mus musculus

<400>  11
attaattact ctgcccattc ctctctttca gagtt                         35
```

```
<210>  12
<211>  52
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chimeric sequence

<400>  12
ccagtgagca gagtgacgag gactcgagct caagcttttt tttttttttt tt          52


<210>  13
<211>  23
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chimeric sequence

<400>  13
aagcccggtg cctgactagc tag          23


<210>  14
<211>  22
<212>  DNA
<213>  mus musculus

<400>  14
gaatatgtct ccaggtccag ag          22


<210>  15
<211>  23
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chimeric sequence

<400>  15
ccagtgagca gagtgacgag gac          23


<210>  16
<211>  18
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  chimeric sequence

<400>  16
ctagctaggg agctcgtc          18


<210>  17
<211>  23
<212>  DNA
<213>  mus musculus

<400>  17
```

```
ccagagtctt cagagatcaa gtc                                              23


<210>   18
<211>   18
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   18
gaggactcga gctcaagc                                                    18


<210>   19
<211>   20
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   19
ctgtaaaacg acggccagtc                                                  20


<210>   20
<211>   68
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   20
cacgtctgca gatcatgagg atgctaatcc ttgatggcat gcactatgcg cgatgatctg      60

cagacgtg                                                               68


<210>   21
<211>   68
<212>   RNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   21
cacgucugca gaucaugagg augcuaaucc uugauggcau gcacuaugcg cgaugaucug      60

cagacgug                                                               68


<210>   22
<211>   70
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   22
```

```
cacgtctgca gtccggagga gtgtgtttct cctccgctga tgagtccgtg aggacgaaac      60

tgcagacgtg                                                              70


<210>   23
<211>   70
<212>   RNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   23
cacgucugca guccggagga guguguuucu ccuccgcuga ugaguccgug aggacgaaac      60

ugcagacgug                                                              70


<210>   24
<211>   279
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   24
ggatccgaat tctcgaggct aagccagttt tcgtaccctt gactgcgttt catcgattcg      60

ctactaacat tgccttttcc tccttccctc ccacaggtgg aagagctcgg gtaccaggag     120

aggagaggag aggagaggag aggagaggag aggagaggag aggagaggag aggagatctc     180

aggtgagttc gcatgtgctt cgaacttgtg tgcatgcgtt ctaaaagggc ttctcttggt     240

gttcgatctg gggctaagct taattaagaa ttcggatcc                            279


<210>   25
<211>   104
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   25
gtggaagagc tcgggtacca ggagaggaga ggagaggaga ggagaggaga ggagaggaga      60

ggagaggaga ggagaggaga tctcaggtga gttcgcatgt gctt                      104


<210>   26
<211>   96
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   26
atgtggaaga gctcgggtac caggagagga gaggagagga gaggagagga gaggagagga      60
```

gaggagagga gatctcaggt gagttcgcat gtgctt   96

<210> 27
<211> 526
<212> DNA
<213> Artificial Sequence

<220>
<223> chimeric sequence

<220>
<221> misc_feature
<222> (20)..(518)
<223> n = a, t, c, or g

<220>
<221> misc_feature
<222> (20)..(518)
<223> each of these residues may be absent or present

<400> 27
gtggaagagc tcgggtaccn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   60

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   120

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   180

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   240

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   360

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   420

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   480

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnntc tcaggt   526

<210> 28
<211> 528
<212> DNA
<213> Artificial Sequence

<220>
<223> chimeric sequence

<220>
<221> misc_feature
<222> (22)..(520)
<223> n = R

<220>
<221> misc_feature
<222> (22)..(520)
<223> n = a, t, c, or g

<220>
<221> misc_feature
<222> (22)..(520)

<223> each of these residues may be absent or present

<400> 28

```
atgtggaaga gctcgggtac cnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn        60

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       120

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       180

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       240

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       360

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       420

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       480

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn tctcaggt                    528
```

<210> 29
<211> 528
<212> DNA
<213> Artificial Sequence

<220>
<223> chimeric sequence

<220>
<221> misc_feature
<222> (22)..(520)
<223> n = V

<220>
<221> misc_feature
<222> (22)..(520)
<223> n = a, t, c, or g

<220>
<221> misc_feature
<222> (22)..(520)
<223> each of these residues may be absent or present

<400> 29

```
atgtggaaga gctcgggtac cnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn        60

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       120

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       180

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       240

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       360

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       420

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn       480

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn tctcaggt                    528
```

```
<210>   30
<211>   69
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   30
aggagaggag aggagaggag aggagaggag aggagaggag aggagaggag aggagaggag      60

atctcaggt                                                              69


<210>   31
<211>   77
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence

<400>   31
atgggagagg agaggagagg agaggagagg agaggagagg agaggagagg agatctcagg      60

tgagttcgca tgtgctt                                                     77


<210>   32
<211>   270
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence


<220>
<221>   misc_feature
<222>   (5)..(254)
<223>   Sequence "agagg" repeats 1-50 times, maximum number of repeats
        shown

<400>   32
atggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga      60

gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga     120

gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga     180

gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga     240

gaggagagga gagggagttc gcatgtgctt                                      270


<210>   33
<211>   254
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   chimeric sequence
```

```
<220>
<221>  misc_feature
<222>  (5)..(254)
<223>  Sequence "agagg" repeats 1-50 times, maximum number of repeats
       shown

<400>  33
atggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga        60

gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga       120

gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga       180

gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga gaggagagga       240

gaggagagga gagg                                                        254
```